SIEMENS

CELSIUS M450/440

TD

Replacements of Parts

System

Replacement of Parts

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Table of Contents 3

1 General information 5

Notes . . . 5
Safety information . . . 5
Replacement or system upgrades . . . 6
Information about boards . . . 6
BIOS Installation . . . 7
Opening the housing . . . 8
Variant A (version with knurled screws) . . . 8
Variant B (version with a locking lever) . . . 9
Closing the housing . . . 10
Variant A (version with knurled screws) . . . 10
Variant B (version with a locking lever) . . . 11
Opening the front panel . . . 12
Closing the front panel . . . 13

2 Fans, ventilation duct, crosspiece 14

Front fan . . . 14
Removing the front fan . . . 15
Securing front fan on fan bracket . . . 15
Installing the front fan . . . 17
Side fan . . . 18
Removing the side fan . . . 18
Installing the side fan . . . 19
Ventilation duct and rear fan . . . 21
Removing the ventilation duct and the rear fan . . . 21
Installing the rear fan and the ventilation duct . . . 23
Crosspiece . . . 25
Removing the crosspiece . . . 25
Installing the crosspiece . . . 26

3 Power supply 27

Preparatory work steps . . . 27
Changing the power supply . . . 28
Final work steps . . . 29

4 Boards 30

Preparatory work steps . . . 30
Removing a board . . . 31
Installing a board . . . 32
Final work steps . . . 33

5 Drives 34

Preparatory work steps . . . 34

CD/DVD drive 35
Removing a CD/DVD drive 35
Installing a CD/DVD drive 37
Hard disk drive 40
Removing a hard disk drive 40
Installing a hard disk drive 40
Final work steps 42

6 Memory module 43

Preparatory work steps 43
Removing a memory module 44
Installing a memory module 45
Final work steps 46

7 Lithium battery 47

Changing the lithium battery 47
Final work steps 50

8 Changes to previous version 51

Notes

Safety information

Please observe the guidelines provided in the safety manual and in the following safety notes.

NOTE	**The ON/OFF switch does not disconnect the device from the mains voltage.** • **To completely disconnect the mains voltage, remove the power plug from the power socket.**

NOTE	**Components in the system can get very hot.** • **Wait a few minutes after switching OFF the system.**

Replacement or system upgrades

NOTE

Do use orginal Siemens spare parts only! It's not permitted to use other parts!

Because the device has to be shut down before system hardware components can be installed or uninstalled, it is a good idea to print out the relevant sections of this chapter.

It may be necessary to update the BIOS when carrying out a system expansion or hardware upgrade. A BIOS CD is available for each product (see (BIOS Installation / p. 7)).

The device must be switched off when system expansions are installed or removed, and must not be in energy-saving mode.

Remove the power plug before opening the device.

If the complete PC tower is replaced, all HW options and extensions installed in the defective tower have to be swapped from there to the replacement tower.

This chapter provides detailed instructions on modifying your device hardware (e.g. installing boards or drives).

Read the supplied documentation before installing any new drives or boards.

NOTE

If it was needed to remove a cable inside the housing, route and fasten them like it was before.

Information about boards

Take care with the locking mechanisms (catches and centering pins) when you are replacing boards or components on boards.

To prevent damage to the board or the components and conductors on it, please take care when you insert or remove boards. Make sure expansion boards are inserted straight.

Never use sharp objects (screwdrivers) for leverage.

Boards with electrostatic sensitive devices (ESD) are identified by the label shown.

When you handle boards fitted with ESDs, you must, under all circumstances, observe the following points:

- You must always discharge static build up (e.g. by touching a grounded object) before working.
- The equipment and tools you use must be free of static charges.
- Always hold boards with ESDs by their edges.
- Never touch pins or conductors on boards fitted with ESDs.

BIOS Installation

⚠CAUTION

Depending to the system, the BIOS installation may result in a lost of patient data.

- ➪ **Check the specific system documentation for details - concerning the BIOS installation.**
- ➪ **If necessary, safe patient data before starting the BIOS installation.**
- ➪ **On some systems a BIOS installation requires a complete SW installation.**

Opening the housing

- Switch the device off. The device must not be in energy-saving mode!

Please observe all safety guidelines in the "Important notes" chapter.

Pull the power plug out of the mains outlet.

Only insert the power plug after you have closed the housing.

- Remove any connected cables in the unit that obstruct you.
- Place the device in a convenient working position.

Variant A (version with knurled screws)

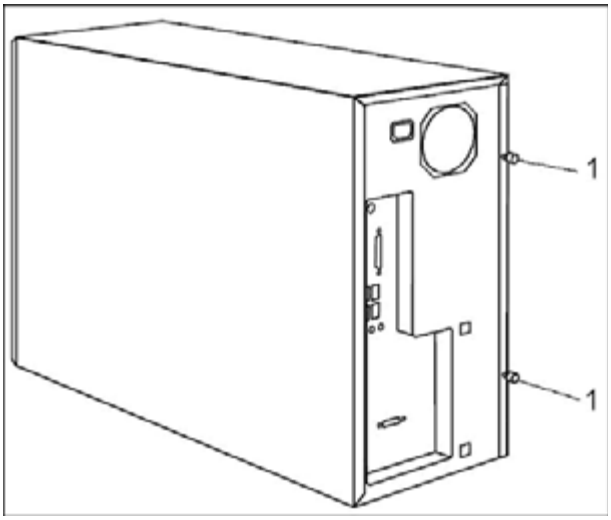

Fig. 1: Variant A (version with knurled screws)

- Unscrew the two knurled screws (1) on the back of the housing.

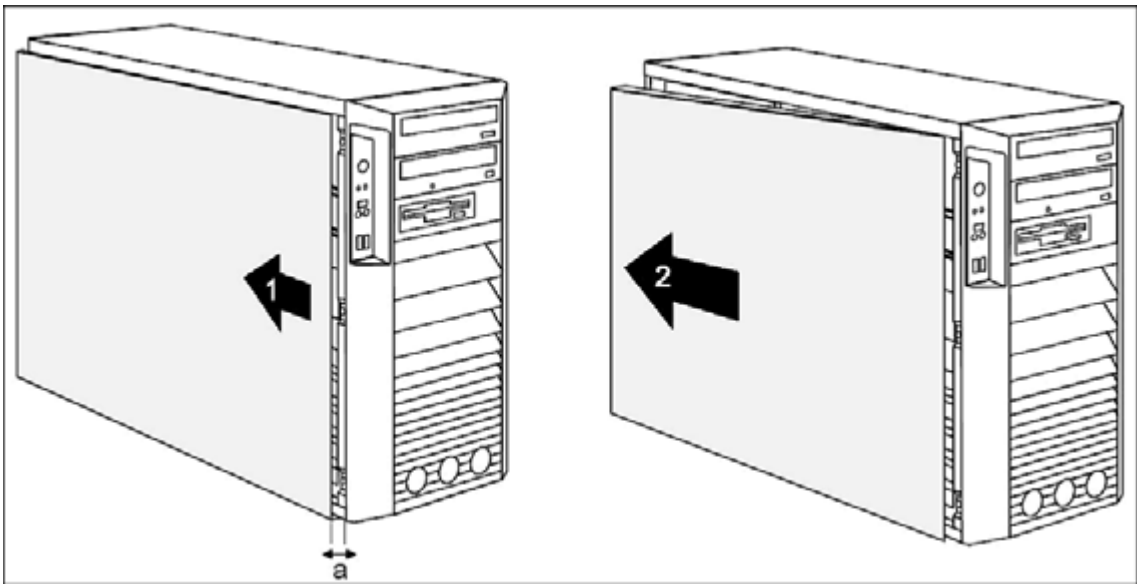

Fig. 2: Variant A (remove side cover)

- Slide the side cover approximately 2 cm (a) in the direction of the arrow (1), until the stop.

- Pull the side cover in the direction of the arrow (2) of the housing.

Variant B (version with a locking lever)

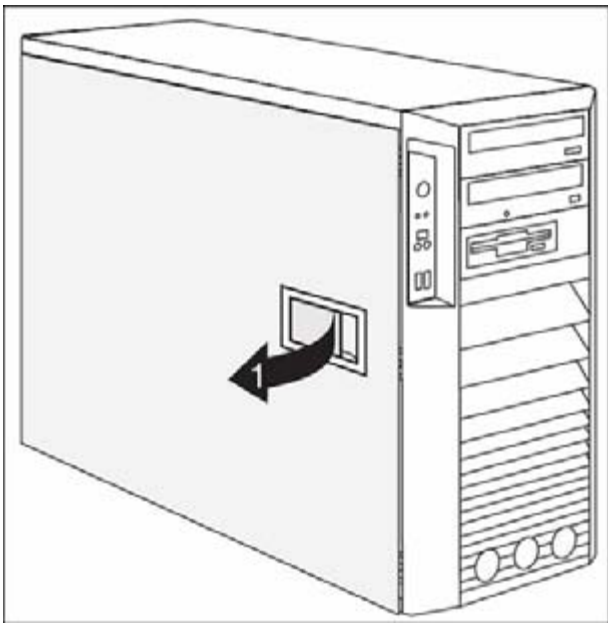

Fig. 3: Variant B (version with a locking lever)

- Pull the locking lever (1).

The side panel is now free and can be detached.

Closing the housing

Variant A (version with knurled screws)

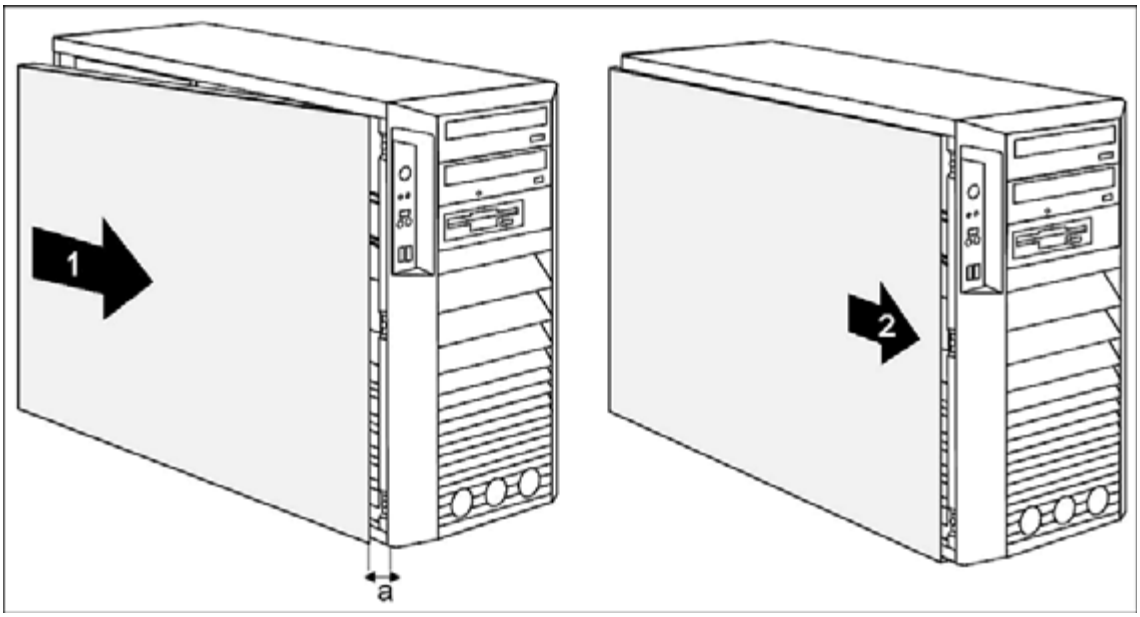

Fig. 4: Variant A (close side cover)

- Hook the side cover into the upper and lower guide rail of the housing in the direction of the arrow (1).

Make sure that the side cover is offset by approximately 2 cm (a).

- Press the side cover onto the housing.
- Push the side cover as far as it will go in the direction of the arrow (2).

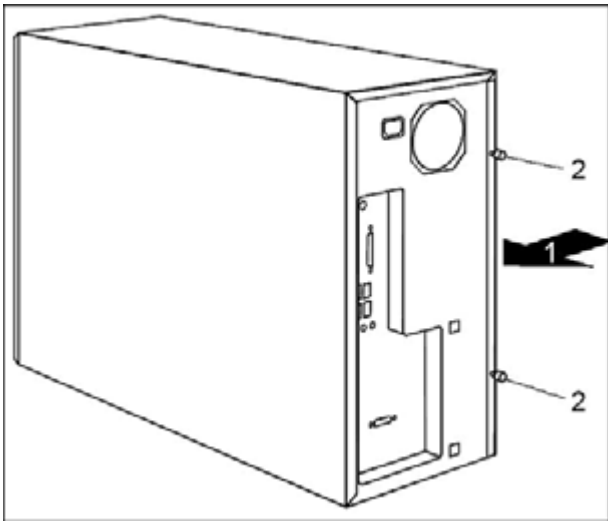

Fig. 5: Variant A (tighten the two knurled screws)

- Press the side cover onto the housing (1) at the rear and tighten the two knurled screws (2) with the other hand.
- Return the system unit to its original position.
- Reconnect any disconnected cables (power cord, cables to external devices, etc.).

Variant B (version with a locking lever)

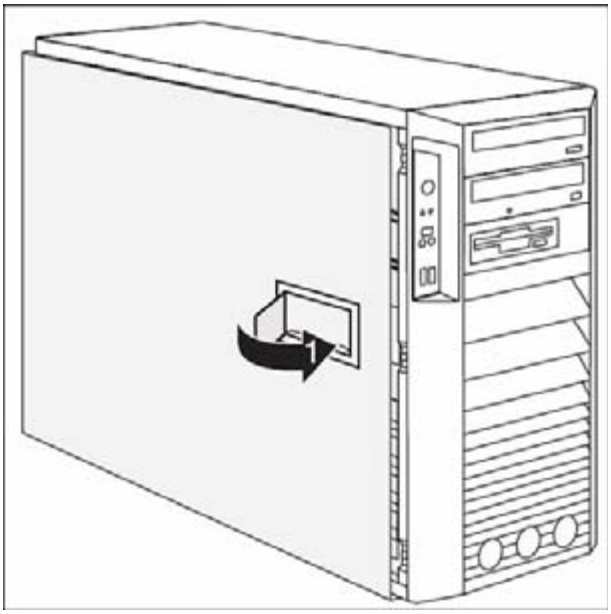

Fig. 6: Variant B (closing with a locking lever)

- Hook the side panel into the cutouts in the upper and lower guide rails.
- Close the locking lever in the direction of the arrow (1).
- Return the system unit to its original position.
- Reconnect any disconnected cables (power cord, cables to external devices, etc.).

Opening the front panel

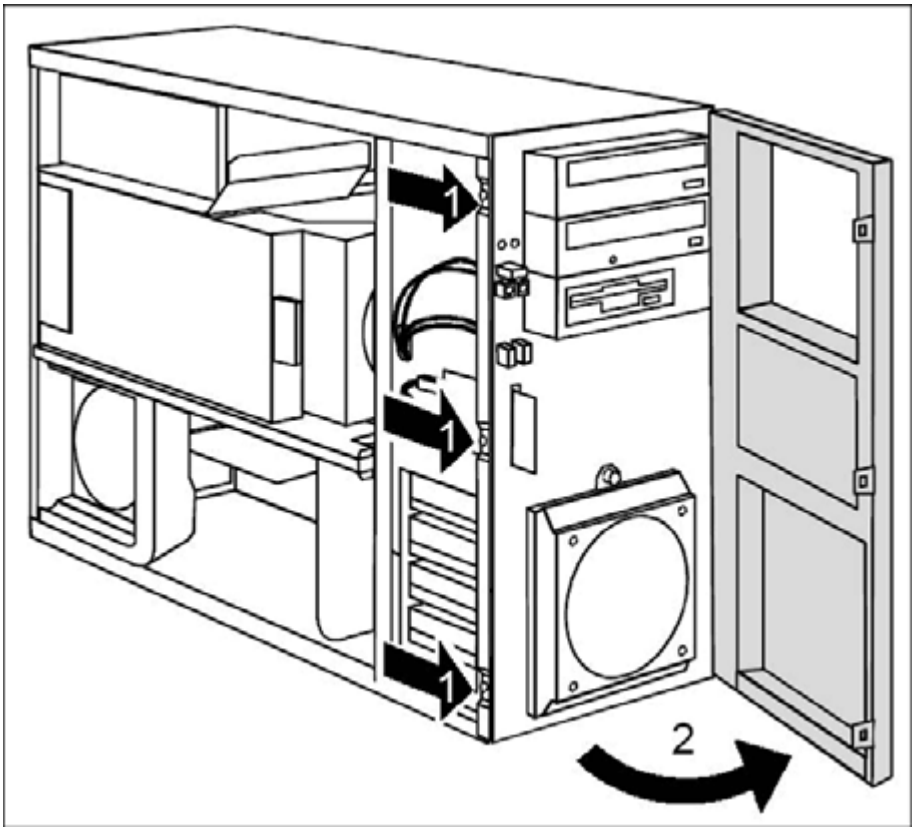

Fig. 7: Opening front panel

- Open the housing (Opening the housing / p. 8).
- Detach the three locking tabs on the left side of the front panel (1).
- Fold open the front in the direction of the arrow (2).
- If necessary, detach the hinge on the right-hand side of the front panel from the housing and carefully remove the front panel.

Closing the front panel

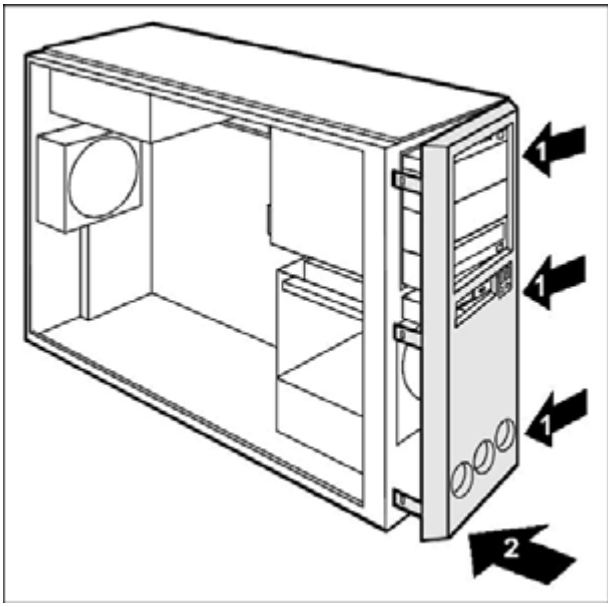

Fig. 8: Closing the front panel

- If necessary, hook in the hinge on the right-hand side of the front panel.
- Close the front panel in the direction of the arrow (1) so that the three locking tabs on the left-hand side of the front panel engage (2).
- Close the housing (Closing the housing / p. 10).

Front fan

- Open the housing (Opening the housing / p. 8).
- Open the front panel (Opening the front panel / p. 12).

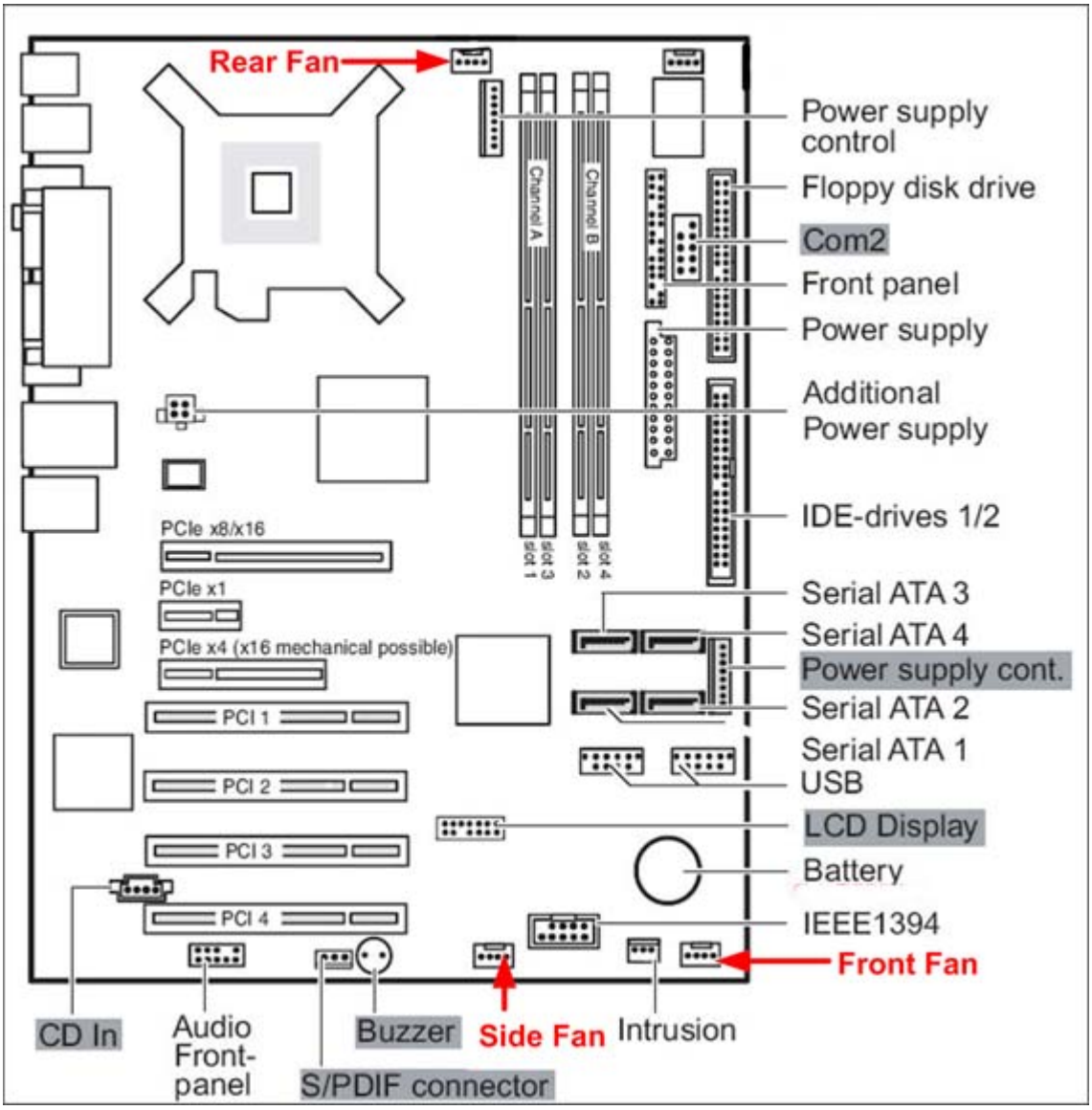

Fig. 9: Fan connectors on the mainboard

Removing the front fan

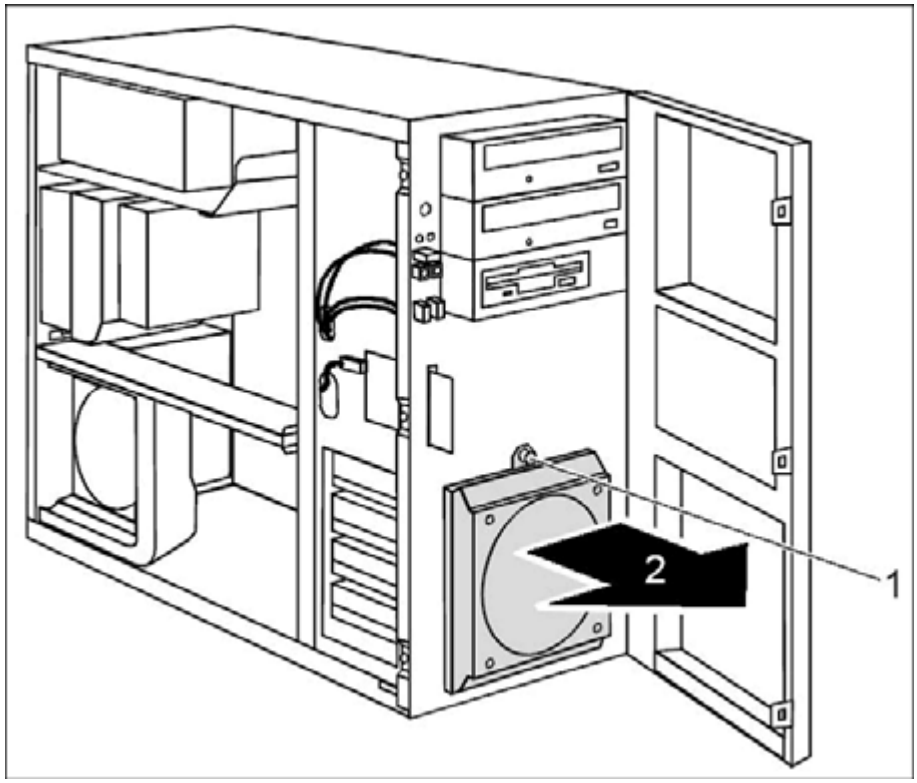

Fig. 10: Removing front fan

- Detach the green expansion rivet (1).
- Make sure that the green expansion rivet (1) is not pulled off the fan.
- Tilt the fan toward the front in the direction of the arrow (2) and remove it from the housing.
- Disconnect the fan cable (refer to , (Fig. 9 / p. 14), “Front fan”)).
- Pull the fan cable out of the housing.
- Remove the fan.

Securing front fan on fan bracket

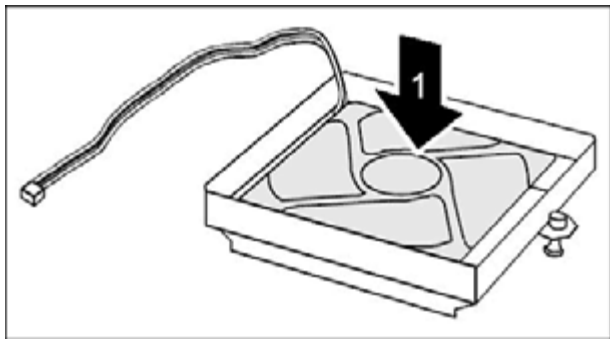

Fig. 11: Fan bracket

- Lay the fan on the fan bracket in the direction of the arrow (1).

NOTE

When doing so, ensure the proper rotation and air-flow direction.

Look about the label of the fan as shown in (Fig. 12 / p. 16).

Fig. 12: Air flow of the front fan

- Press the fan firmly into the fan bracket until it is felt to engage.

Installing the front fan

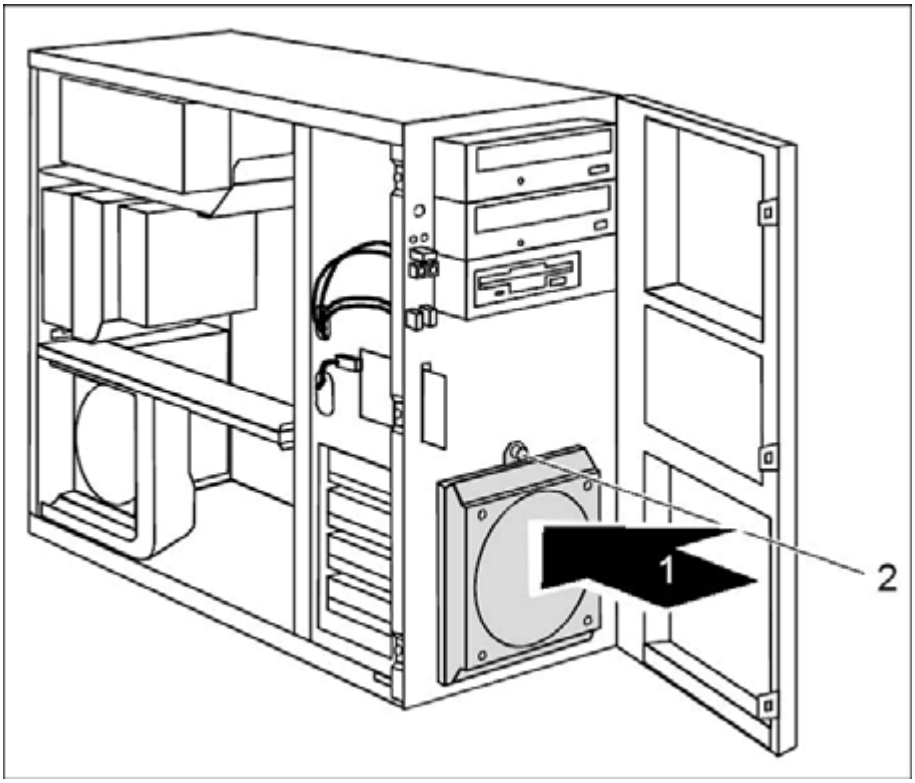

Fig. 13: Installing the front fan

- Connect the fan cable.(refer to (Fig. 9 / p. 14) “Front fan”)).
- Insert the fan into the housing in the direction of the arrow (1) so that the lower edge of the fan is flush with the bottom of the device.

NOTE	**Make sure that the power supply cable is not pinched when doing so.**

- Slightly pull back the green expansion rivet (2) until the tip of the expansion rivet is no longer spread.
- Press the green expansion rivet (2) into the hole on the housing.
- Secure the fan by pressing the green expansion rivet (2) into the housing until the tip of the expansion rivet is spread again.
- Close the front panel (Closing the front panel / p. 13).
- Close the housing (Closing the housing / p. 10).

Side fan

You will need to remove the side fan inside the housing in order to install boards or upgrade the main memory.

Removing the side fan

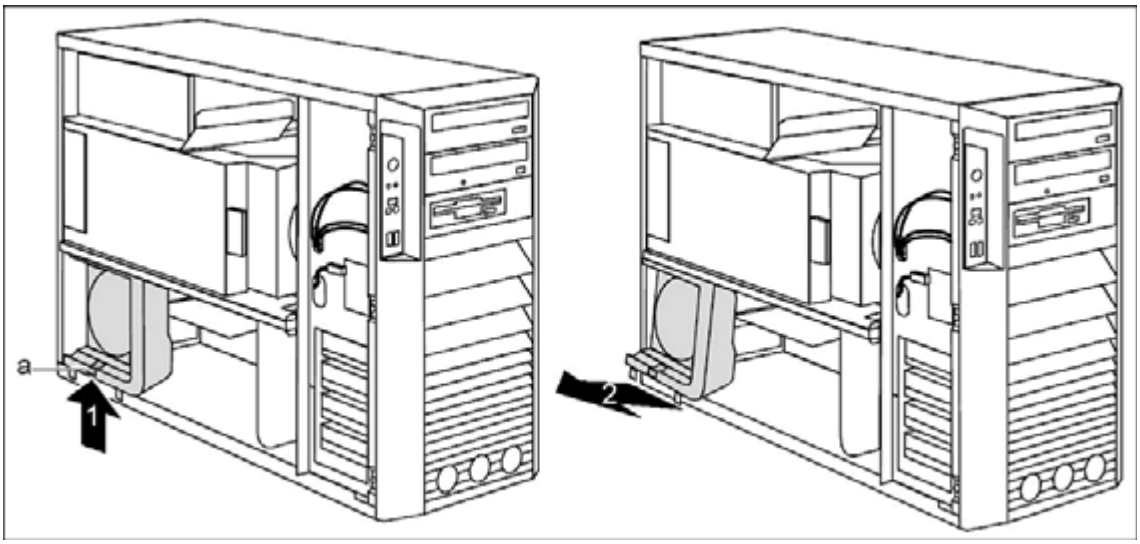

Fig. 14: Removing the side fan

- Open the housing (Opening the housing / p. 8).
- Release the side fan by pressing the locking hook (a) in the direction of the arrow (1).
- Pull the bottom edge of the side fan in the direction of the arrow (2) out of the housing.
- Disconnect the cable of the fan from the mainboard (refer to (Fig. 9 / p. 14), “Side fan”).
- Remove the side fan from the housing.

Installing the side fan

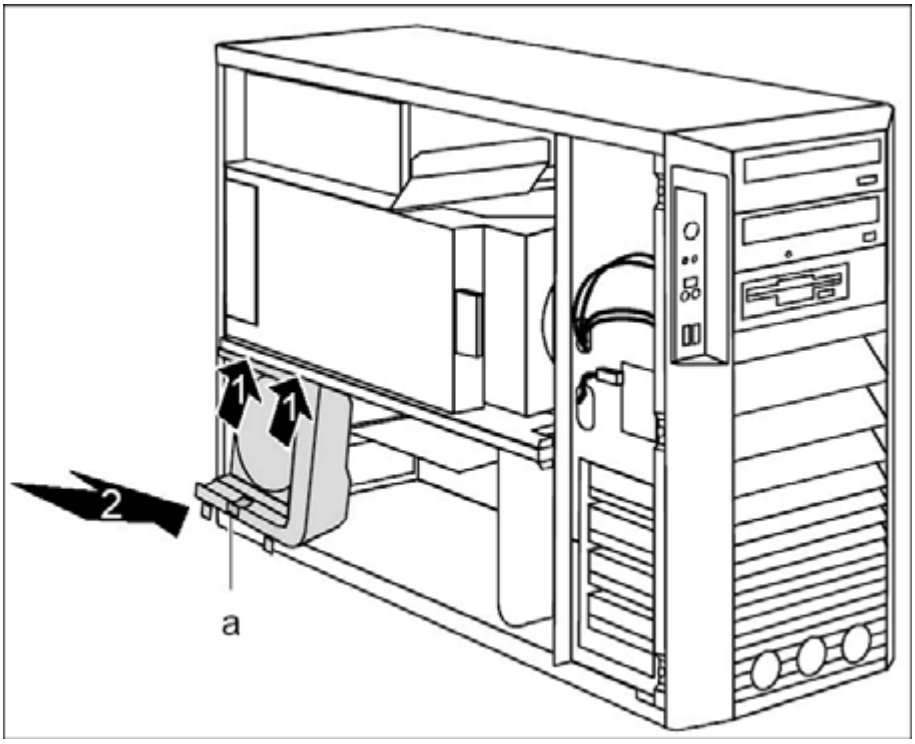

Fig. 15: Installing the side fan

- Connect the fan cable to the corresponding plug contact on the mainboard (refer to (Fig. 9 / p. 14), “Side fan”).
- Position the side fan at a slight angle in the direction of the arrow (1) and hook the fan lugs into the notches on the crosspiece.

NOTE	**When doing so, ensure the proper rotation and air-flow direction.** **Look about the label of the fan as shown in (Fig. 16 / p. 19).**

- Push the side fan into the housing in the direction of the arrow (2).

Fig. 16: Air flow of the side fan

- Lock the side fan by pressing the locking hook (a) downward.
- Close the housing (Closing the housing / p. 10).

Ventilation duct and rear fan

Removing the ventilation duct and the rear fan

Before you can upgrade the main memory or the processor, or before you can replace the processor or the lithium battery, you must remove the ventilation duct.

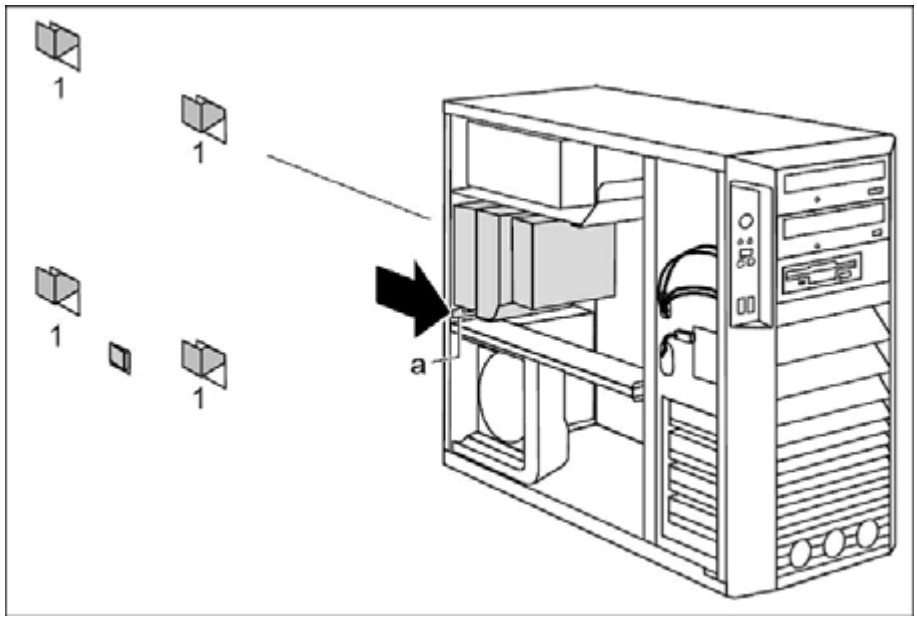

Fig. 17: Removing the ventilation duct (1)

- Open the housing (Opening the housing / p. 8).
- Press the lever (a) in the direction of the arrow until the lever unhooks.

  The hooks (1) on the back of the housing will release.
- Carefully unhook the hooks (1).

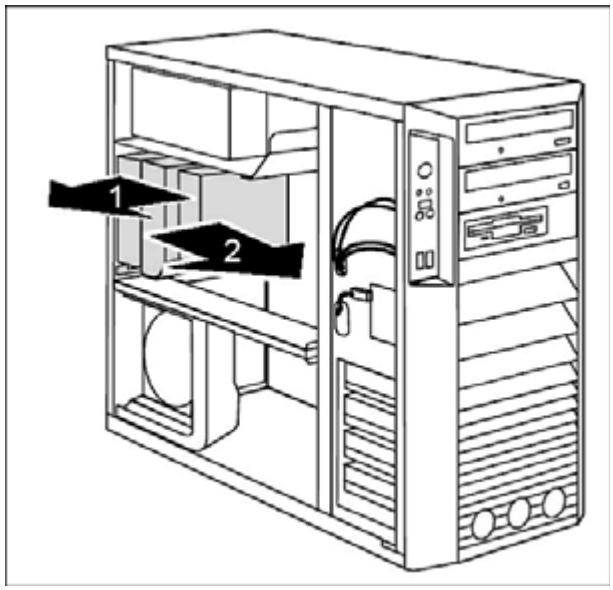

Fig. 18: Removing the ventilation duct (2)

- Pull the ventilation duct and the fan a few millimeters (1) to release the hooks at the back of the housing.
- Remove the ventilation duct and the fan from the housing in the direction of the arrow (2).
- Remove the fan cable from the mainboard and take note of where it was plugged in (refer to (Fig. 9 / p. 14) , “Rear fan”).
- Remove the rear fan from the ventilation duct by pushing the 4 hooks in the direction of the arrows:

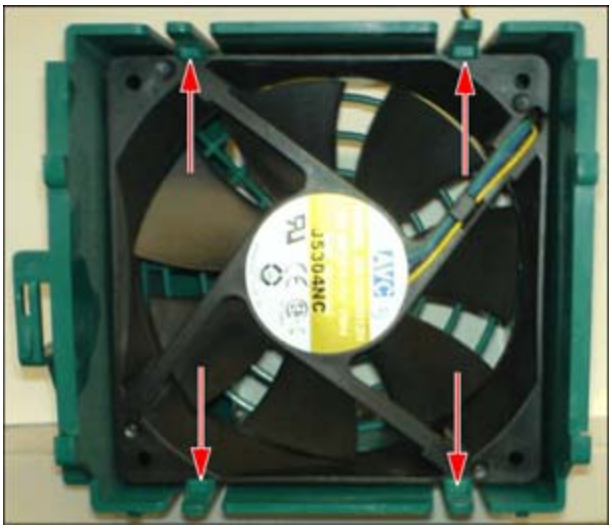

Fig. 19: Rear fan (M440/450)

NOTE

When removing the ventilation duct, be careful not to damage the processor cooler(s) on the mainboard. If necessary, disconnect the cable to the mainboard.

Installing the rear fan and the ventilation duct

- Connect the fan cable to the mainboard, at the connection point you noted before (refer to (Fig. 9 / p. 14) , “Rear fan”).

Fig. 20: Air flow of the rear fan

- Mount the rear fan in the ventilation duct (4 hooks).
- Pull the fan cable off the fan before installing the ventilation duct in the device.
- Connect the fan cable to the corresponding connector on the mainboard (also see the technical manual for the mainboard).

NOTE

When routing the fan cable, make sure that it is not kinked or pinched.

When fitting the ventilation duct, be careful not to damage the processor cooler(s) on the mainboard.

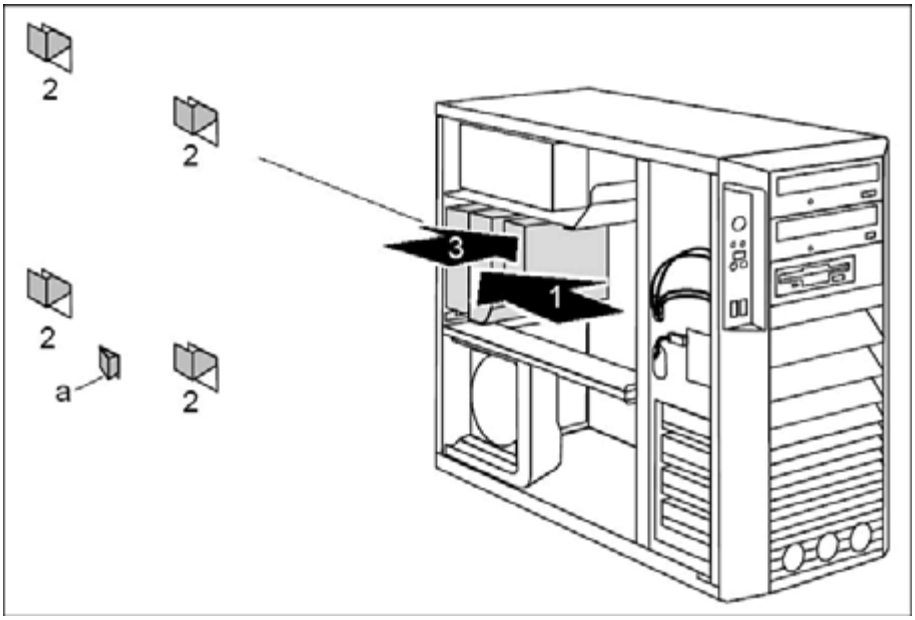

Fig. 21: Installing the ventilation duct (1)

- Place the ventilation duct and the fan in the housing at a slight angle in the direction of the arrow (1). The hooks of the ventilation duct must hook into the openings (2) in the back of the housing.
- Push cables aside if they get in the way.
- Press the ventilation duct and the fan into the housing in the direction of the arrow (3) until the ventilation duct engages noticeably.

  The fan is properly engaged when the locking lug (a) protrudes slightly at the back of the housing.
- Connect the fan cable to the fan.

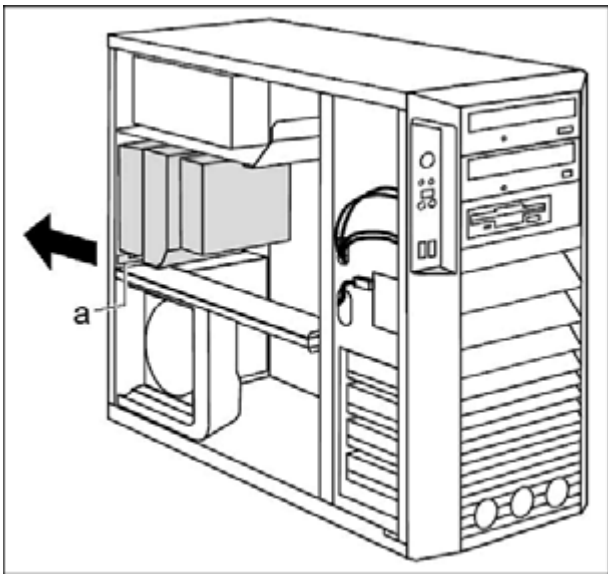

Fig. 22: Installing the ventilation duct (2)

- Press the lever (a) of the ventilation duct in the direction of the arrow until the lever (a) hooks in.
- Close the housing (Closing the housing / p. 10).

Crosspiece

Removing the crosspiece

Before replacing the main memory, you will need to remove the crosspiece.

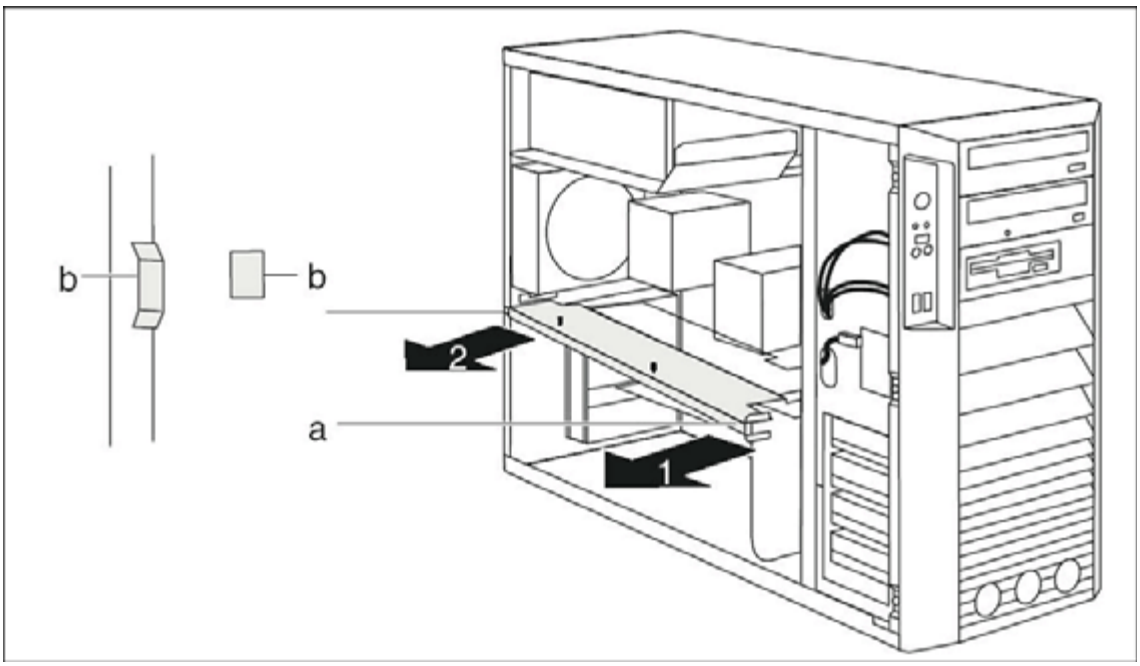

Fig. 23: Removing the crosspiece

- Open the housing (Opening the housing / p. 8).
- Remove the ventilation duct (Removing the ventilation duct and the rear fan / p. 21).
- Remove the side fan (Removing the side fan / p. 18).
- Grasp the crosspiece by the lug (a) and unhook it from the brackets in the housing.
- Pull the crosspiece slightly out of the housing in the direction of the arrow (1).
- Detach the crosspiece from the brackets (b) on the back of the housing.
- Remove the crosspiece from the housing in the direction of the arrow (2).

Installing the crosspiece

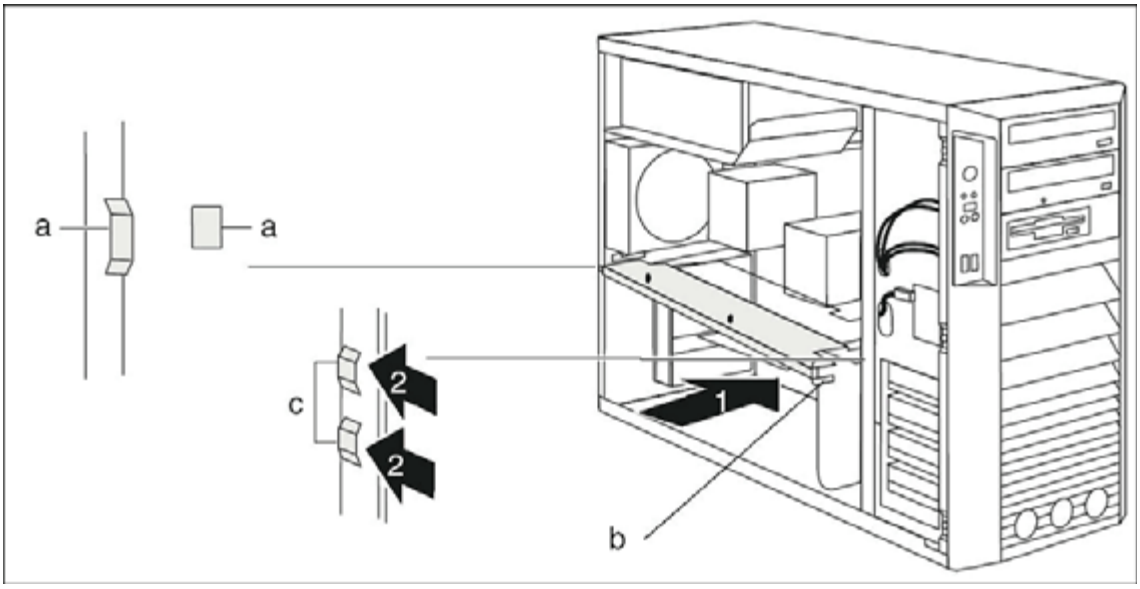

Fig. 24: Installing the crosspiece

- Insert the crosspiece into its brackets (a) on the back of the housing at a slight angle.

NOTE	**Make sure that the Plexiglas plate of the crosspiece is not pinched between the memory slots.**

- Press the crosspiece into the housing in the direction of the arrow (1) until the lugs (b) of the crosspiece hook into the brackets (c) in the housing.
- Install the side fan (Installing the side fan / p. 19).
- Install the ventilation duct (Installing the rear fan and the ventilation duct / p. 23).
- Close the housing (Closing the housing / p. 10).

Preparatory work steps

- Open the housing (Opening the housing / p. 8).
- Remove the ventilation duct (Removing the ventilation duct and the rear fan / p. 21).
- Remove the crosspiece (Removing the crosspiece / p. 25).

Changing the power supply

Fig. 25: Power Supply (1).jpg

- Make notes about the power connectors (mainboard (refer to (Fig. 9 / p. 14), drives and graphics board) and the ducting of the power supply, and disconnect all of them.
- Remove the 4 screws (arrows) on the back of the power supply.
- Pull the power supply out from the case laterally.

Fig. 26: Pillar

- Remove the pillar (2 screws) and mount it on the new power supply.
- Move the new power supply into the housing and attach it with the 4 screws on the back.
- Connect all power connectors and attach the cables as they were before.

Final work steps

- Install the crosspiece (Installing the crosspiece / p. 26).
- Install the ventilation duct (Ventilation duct and rear fan / p. 21)
- Close the housing (Closing the housing / p. 10).

Preparatory work steps

Please take note of the "Information about boards”(Information about boards / p. 6).

NOTE

The number, position, and arrangement of the board slots on the mainboard can be found in the manual for the mainboard.

- Open the housing (Closing the housing / p. 10).
- Remove the side fan (Removing the side fan / p. 18).
- Remove the crosspiece if it is in the way (Removing the crosspiece / p. 25).
- Disconnect the cables connected to the board.

Removing a board

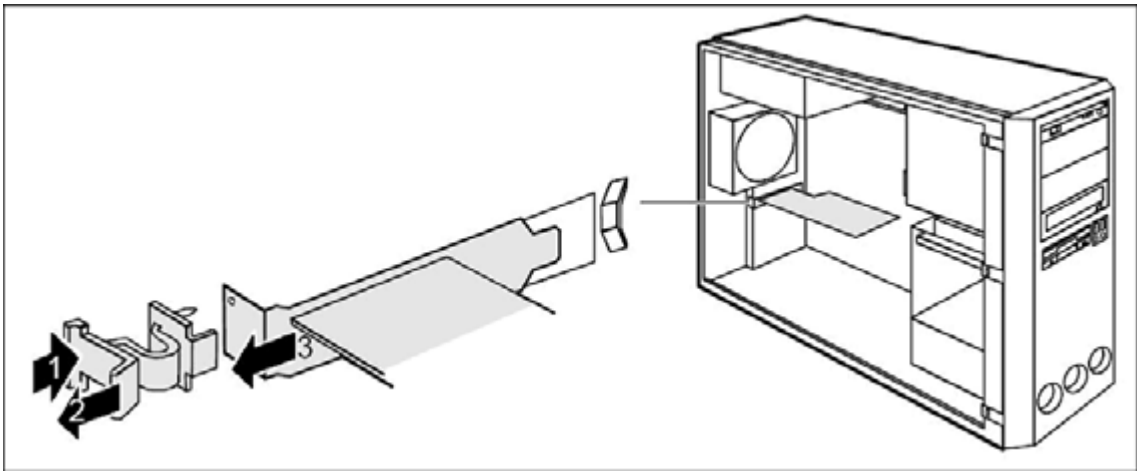

Fig. 27: Removing a board (1)

- Press the clip in the direction of the arrow (1) and unhook it.
- Pull off the clip (2).
- Remove the board from the casing (3).
- Place the board into the appropriate packaging.

For cooling, protection against fire, and in order to comply with EMC (electromagnetic compatibility) regulations, you must refit the slot plate.

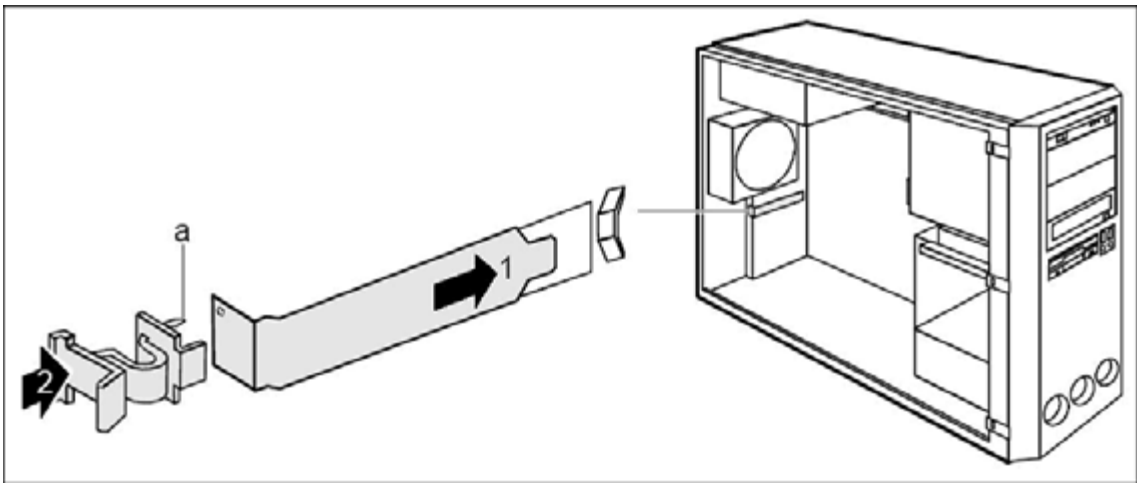

Fig. 28: Removing a board (2)

- Push the rear slot cover plate into the slot (1). Ensure that the point of the cover engages on the outside of the housing.
- Put the clip on. Make sure that the pin (a) is inserted into the screw hole.
- Press the clip in the direction of the arrow (2). Make sure that the clip engages when released.

Installing a board

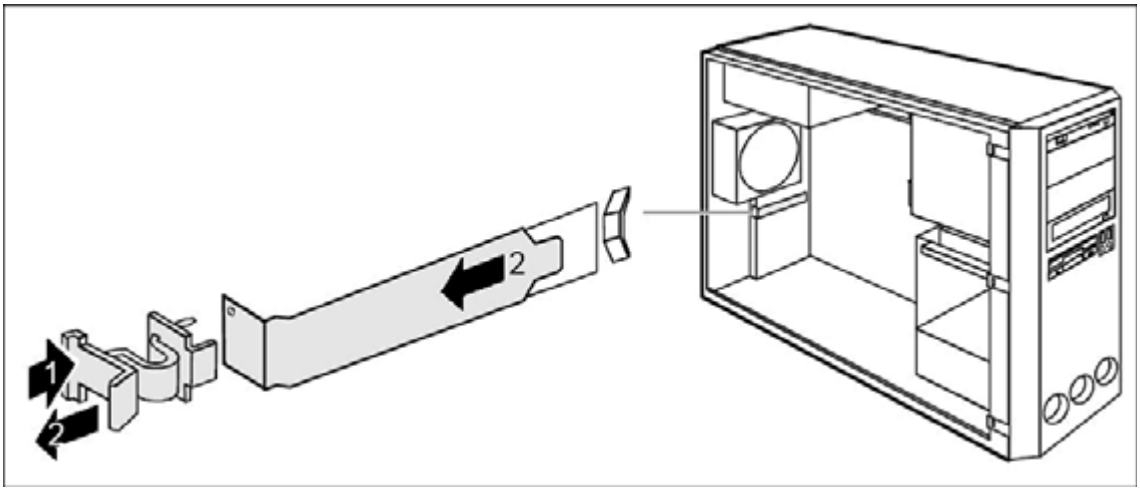

Fig. 29: Installing a board (1)

- Press on the clip (1) in the direction of the arrow and unhook it (2).
- Pull off the clip (2).
- Remove the rear slot cover plate from the slot (2).

Do not dispose of the slot cover. For cooling, protection against fire and in order to comply with EMC regulations, you must refit the cover plate if you remove the board.

- Take the new board out of its packaging.
- Make the required settings for the board.

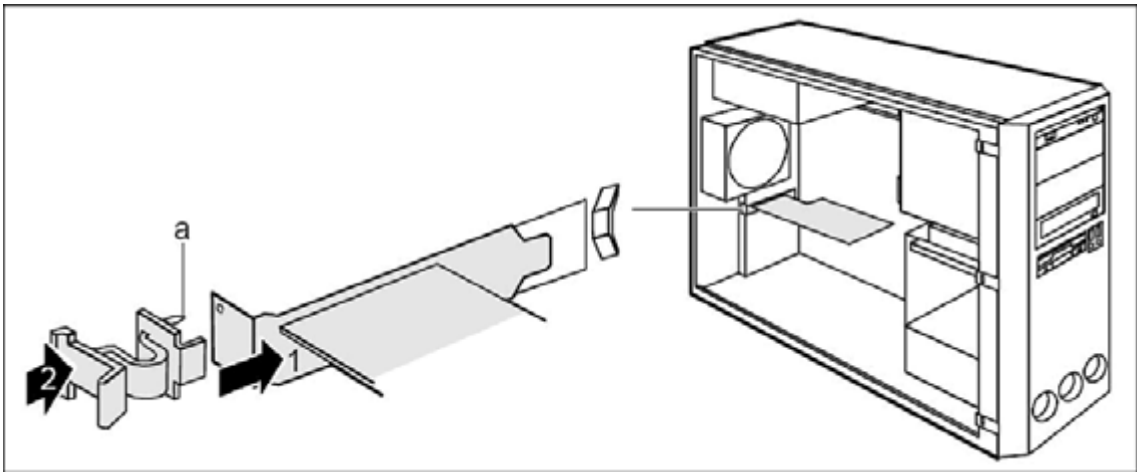

Fig. 30: Installing a board (2)

- Push the board up to its slot (1) as far as the stop.
- Press the board into the slot so that it engages.
- Put the clip on. Make sure that the pin (a) is inserted into the screw hole.
- Press the clip in the direction of the arrow (2). Make sure that the clip engages when released.
- If necessary, connect the cables.

Final work steps

- Close the housing (Opening the housing / p. 8).

NOTE	**If you have installed or removed a PCI board, please check the relevant PCI slot settings in the BIOS Setup. If necessary, change the settings. Further information is provided in the PCI board documentation.**

Preparatory work steps

- Open the housing (Opening the housing / p. 8).
- Remove the front panel (Opening the front panel / p. 12).

CD/DVD drive

Removing a CD/DVD drive

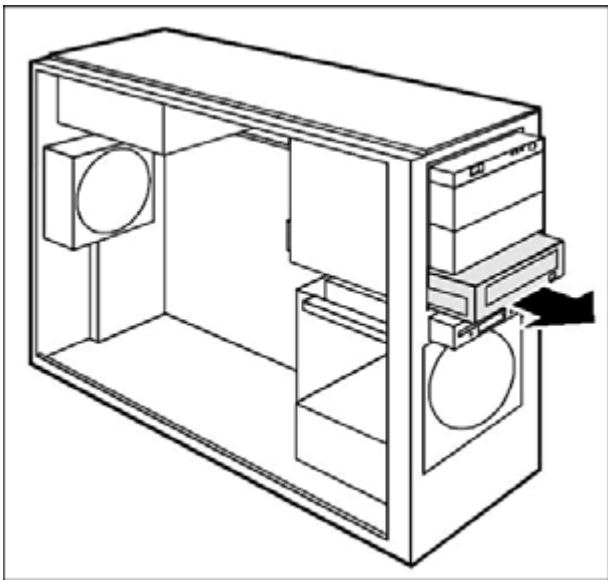

Fig. 31: Removing a CD/DVD drive (1)

- Pull the data and the power supply connectors from the desired drive.
- Pull the drive out of the housing.
- If necessary, make the required settings on the remaining hard disk drive.

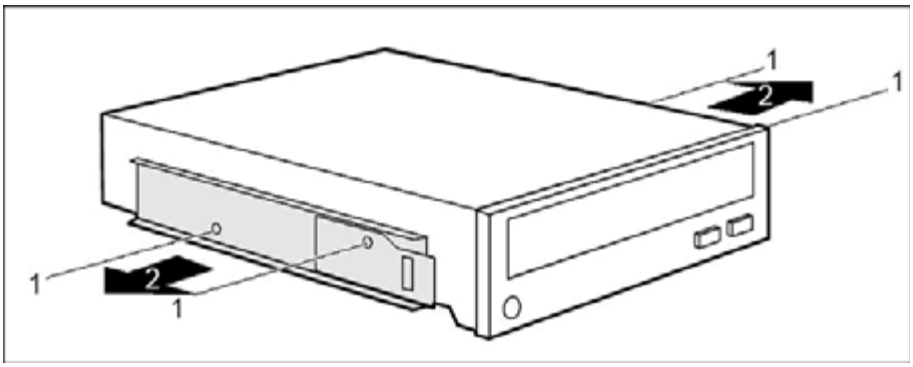

Fig. 32: Removing a CD/DVD drive (2)

- Loosen the screws (1).
- Remove the rails from the drive (2).

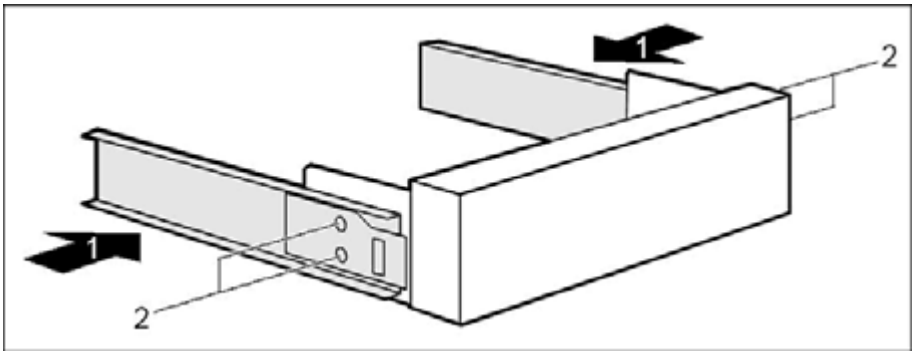

Fig. 33: Removing a CD/DVD drive (3)

- Lay the rails onto the blanking plate such that the holes in them align with the screw holes (1).
- Fasten the rails with the screws (2).

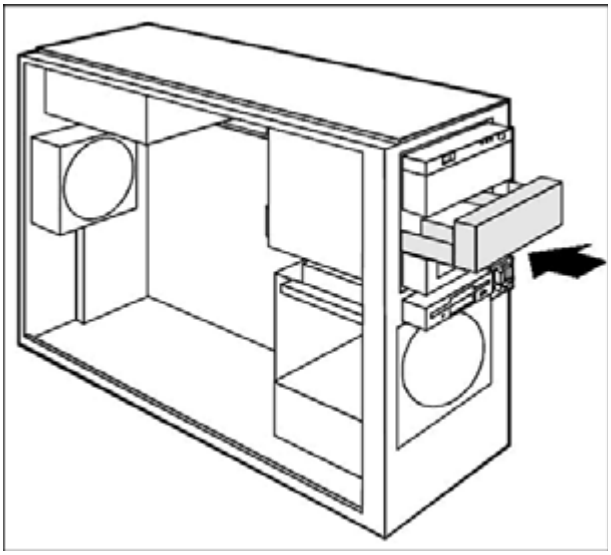

Fig. 34: Removing a CD/DVD drive (4)

- Slide the empty slide-in module into the housing.

Installing a CD/DVD drive

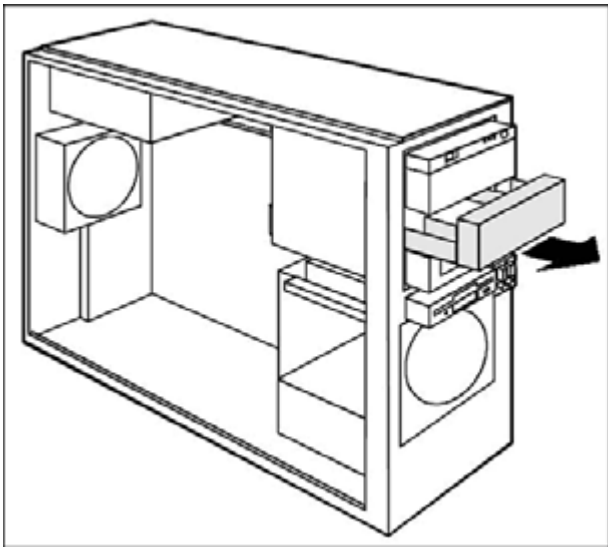

Fig. 35: Installing a CD/DVD drive (1)

- Pull the empty slide-in module out of the housing.

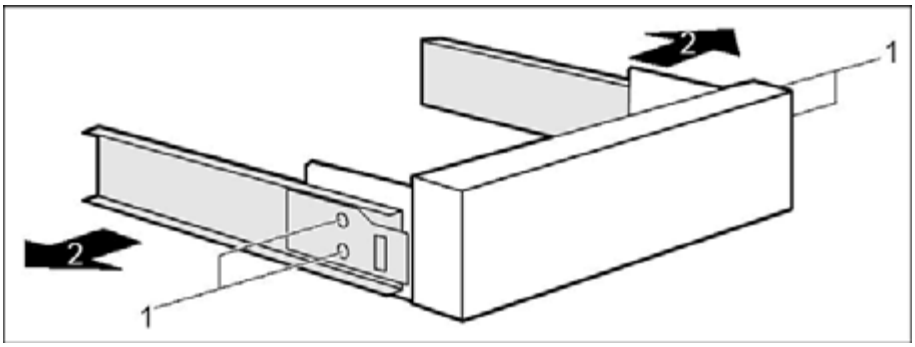

Fig. 36: Installing a CD/DVD drive (2)

- Loosen the screws (1).
- Remove the rails from the cover (2).

NOTE

Do not throw away the cover of the empty slide-in module. For cooling, protection against fire, and in order to comply with EMC regulations, you must refit the empty slide-in module if you remove the drive again later.

- Take the new drive out of its packaging.
- Adjust the required settings on the drive (if necessary, on already-installed drives as well).

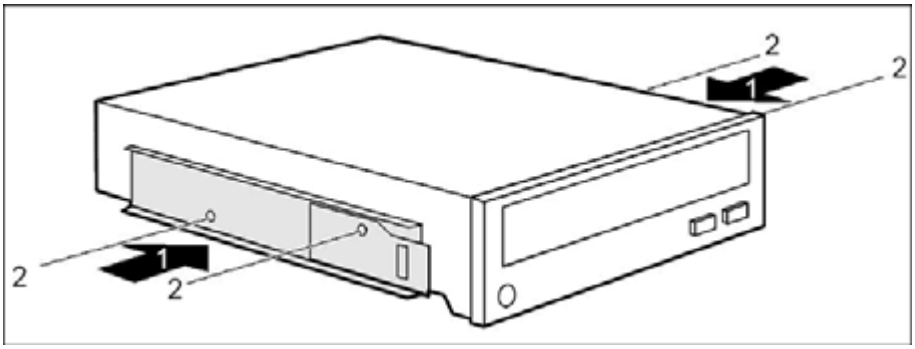

Fig. 37: Installing a CD/DVD drive (3)

- Lay the rails onto the drive such that the holes in them align with the screw holes (1).
- Fasten the rails with the screws (2).

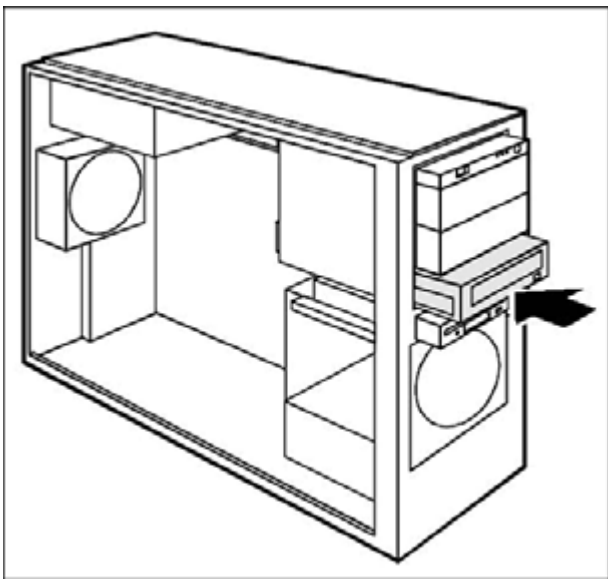

Fig. 38: Installing a CD/DVD drive (4)

- Slide the accessible drive into the housing.
- Plug the data and the power supply connectors into the drive. Make sure the polarity is correct.

Changing the drive letter

- Login as administrator
- Use the Explorer to check, if CD-writer and DVD-drive still have the proper drive letters. These are:
  - DVD-drive -> R
  - CD-writer -> S

- If the drive letters need to be changed ->

  Start the disk manager by selecting START --> RUN and entering diskmgmt.msc.

Fig. 39: Run diskmgmt.msc

- The disk manager pops up.

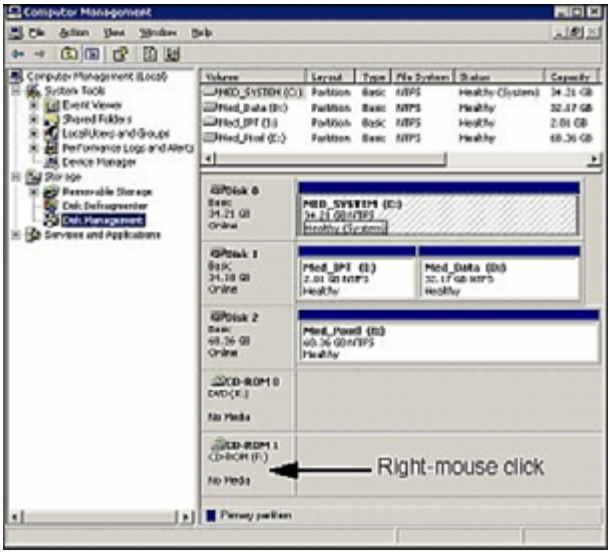

Fig. 40: Disk manager

- Right-click the drive to be (re-) assigned, and select 'Change drive letter and paths...' from the popup menu.
- Select 'Change' in the next popup and choose the proper drive letter from the drop-down list of the next one.
- Click 'Yes' in the 'Confirm' popup. (Repeat this sequence for every drive where the drive letter needs to be changed.)

Hard disk drive

Removing a hard disk drive

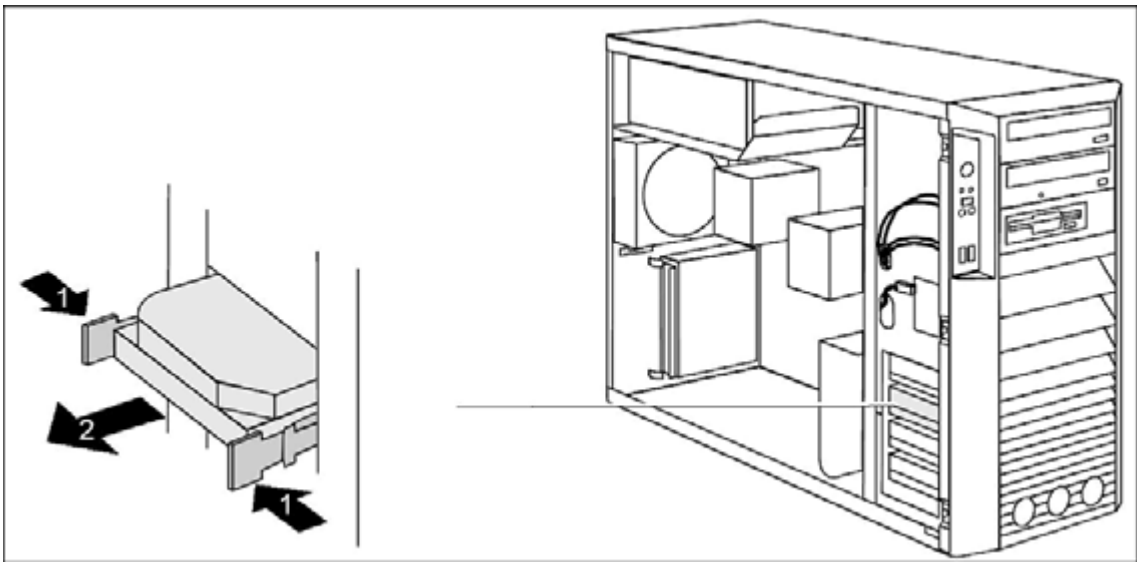

Fig. 41: Removing a hard disk drive (1)

- Disconnect the data and power supply cables of the hard disk drive.
- Press the EasyChange rails in the direction of the arrows (1).
- Pull the hard disk drive out of the carrier (2). Set the jumpers as it was before.

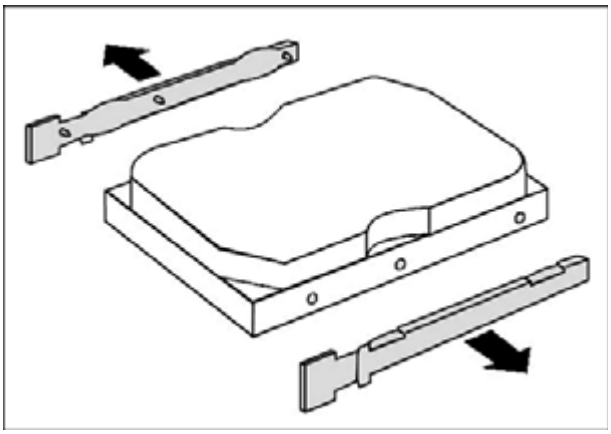

Fig. 42: Removing a hard disk drive (2)

- Pull the EasyChange rails off the hard disk drive.
- If necessary, make the required settings on the remaining hard disk drive.

Installing a hard disk drive

- Take the new hard disk drive out of its packaging.
- Make the required settings on the drive.

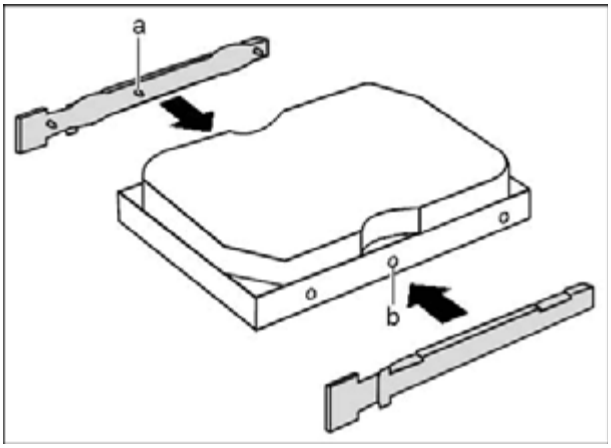

Fig. 43: Installing a hard disk drive (1)

- Secure the EasyChange rails on the side of the hard disk by inserting the upper pins (a) of the EasyChange rail in the corresponding holes (b) of the hard disk.

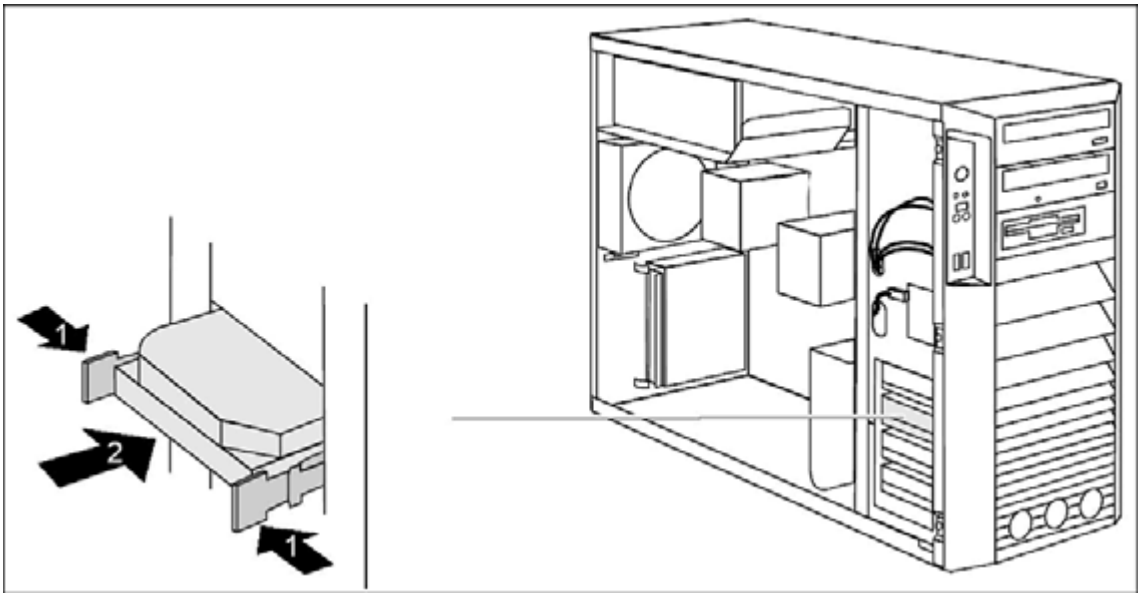

Fig. 44: Installing a hard disk drive (2)

- Press the EasyChange rails in the direction of the arrows (1).
- Push the hard disk drive into the housing (2) until the EasyChange rails engage.
- Connect the data and power supply cables to the hard disk drive.

Final work steps

- Close the front panel (Closing the front panel / p. 13).
- Close the housing (Closing the housing / p. 10).

Preparatory work steps

- Open the housing (Opening the housing / p. 8).
- Remove the ventilation duct (Removing the ventilation duct and the rear fan / p. 21)
- Remove the crosspiece (Removing the crosspiece / p. 25).

Removing a memory module

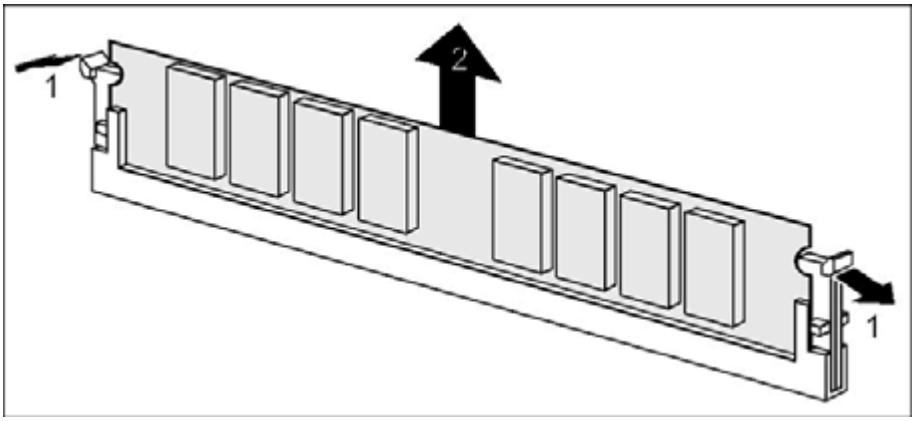

Fig. 45: Removing a memory module

- Push the clips on the right and left of the memory slot outward (1).
- Pull the memory module out of the memory slot (2).

Installing a memory module

NOTE

When installing memory modules, make sure the modules align properly with the memory socket. There should be keys (small indents) on your memory modules that fit according to the keys in the memory socket. DDR modules and sockets have only one key, which is near the center of the module/socket.

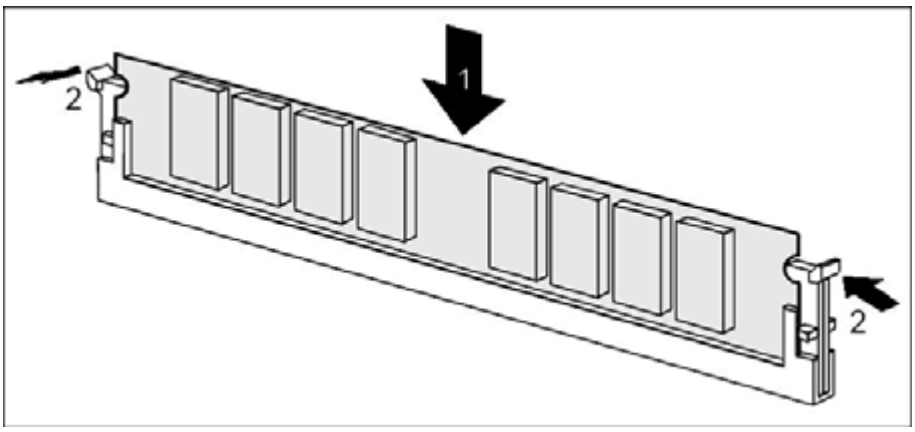

Fig. 46: Installing a memory module

- Push the holders on each side of the memory slot outwards.
- Insert the memory module into the location (1).
- At the same time flip the lateral holders upwards until the memory module snaps into place (2).

Final work steps

- Install the crosspiece (Installing the crosspiece / p. 26).
- Install the ventilation duct (Installing the rear fan and the ventilation duct / p. 23).
- Close the housing (Closing the housing / p. 10).

Changing the lithium battery

⚠CAUTION

Depending to the system, the BIOS installation may result in a lost of patient data.

- ➪ **Check the specific system documentation for details - concerning the BIOS installation.**
- ➪ **If necessary, safe patient data before starting the BIOS installation.**
- ➪ **On some systems a BIOS installation requires a complete SW installation.**

- Open the housing (Opening the housing / p. 8).
- If necessary, send any patient images in the system to the archive or burn them to a CD/DVD.

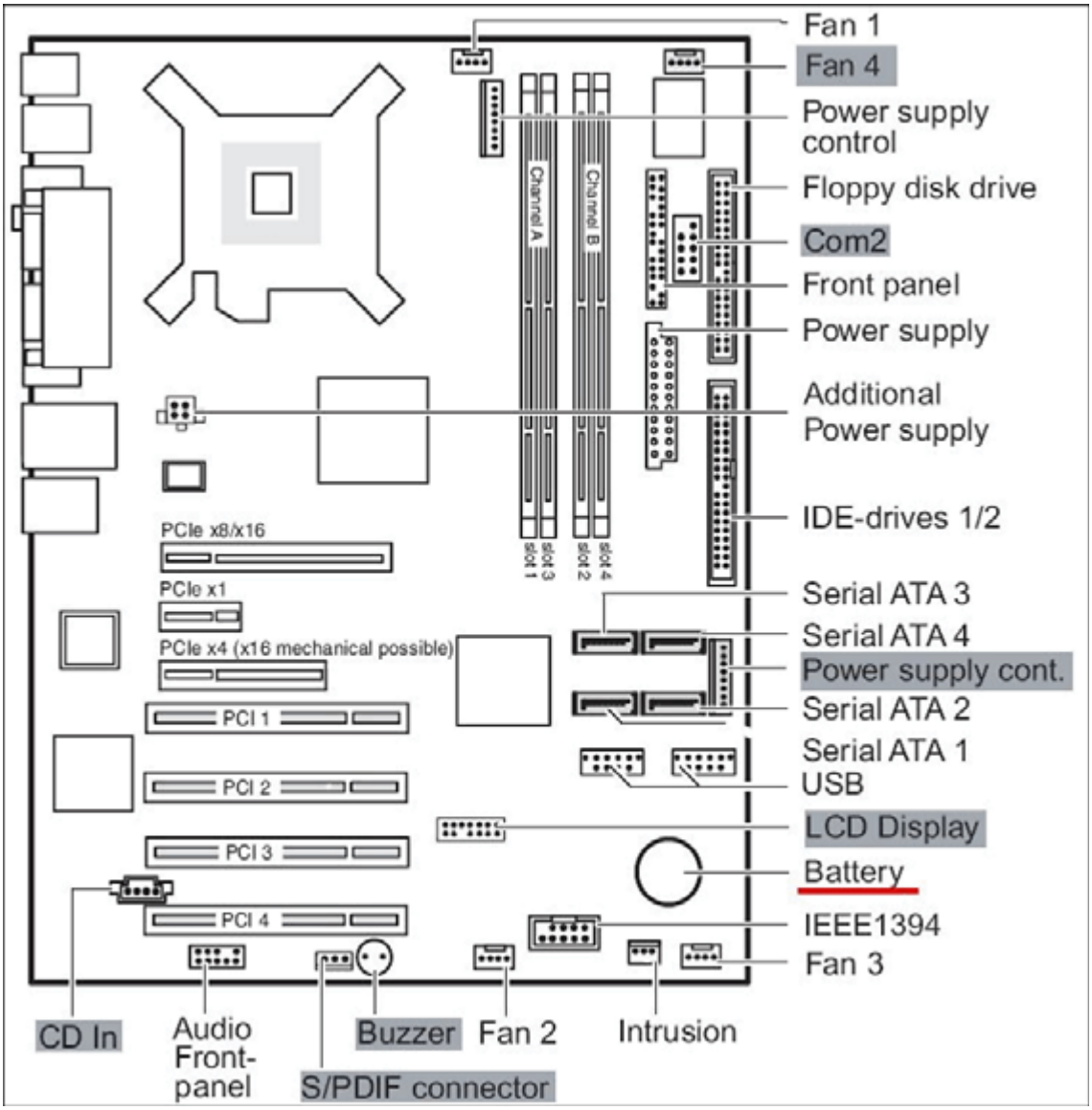

Fig. 47: Overview, mainboard D2438

In order to permanently save the system information, a lithium battery is installed to provide the CMOS-memory with a current. A corresponding error message notifies the user when the charge is too low or the battery is dead. The lithium battery must then be replaced.

Incorrect replacement of the lithium battery may lead to a risk of explosion!

The lithium battery may be replaced only with an identical battery or with a type recommended by the manufacturer.

Do not throw lithium batteries into the household waste. They must be disposed of in accordance with local regulations concerning special waste.

Make sure that you observe the correct polarity when replacing the lithium battery. The plus pole must be on top!

There are several different lithium battery holder designs; all of them function in the same way.

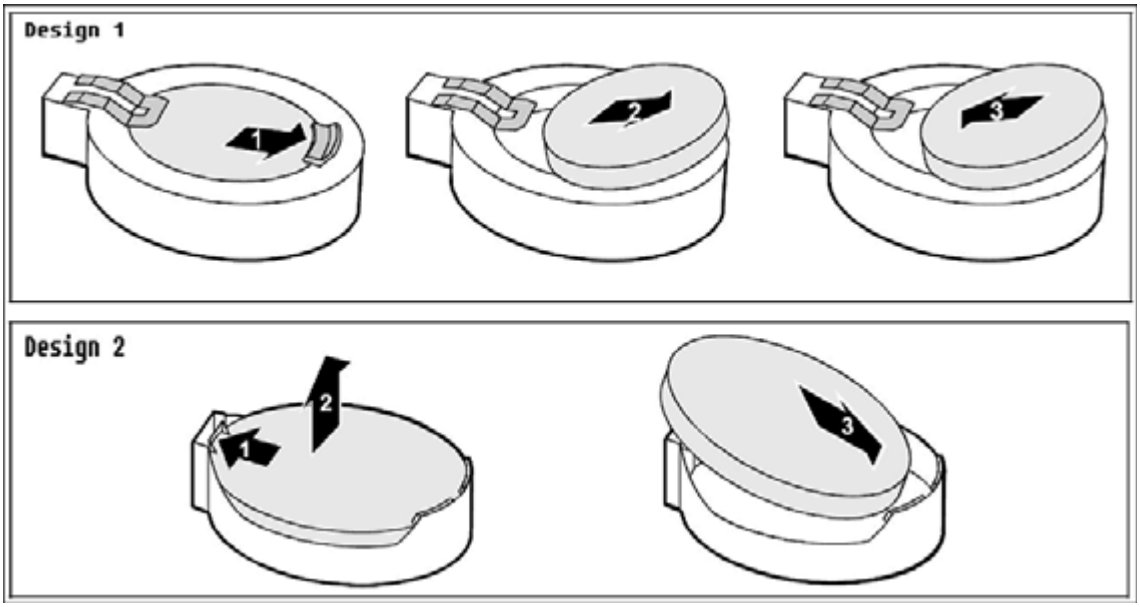

Fig. 48: Changing the lithium battery

1. Press the catch in the direction of the arrow (1).
   ➪ The battery jumps out of the holder slightly.
2. Remove the battery (2).
3. Push the new lithium battery of the identical type into the holder and press it downward until it engages (3).

Restoring BIOS settings (necessary after battery replacement)

NOTE	**When the battery is empty, the BIOS is set to default.** **In addition to activating the system ON/OFF switch, the following may be necessary ->** **- Turn OFF the PC via the power switch at the rear panel of the PC.** **- Turn ON the PC via the rear power switch and press the push button on the front panel of the PC.**

1. If necessary, send any patient images in the system to the archive or burn them to a CD/DVD.
2. Install the BIOS according to the specific system documentation.
3. At some systems the BIOS installation is only possible together with the complete SW installation procedure.

Final work steps

- Close the housing (Closing the housing / p. 10).

All chapters completely revised.